DNR Ecological Reference Areas
Definition and Principles of Management

Definition of an Ecological Reference Area

- ERAs are a DNR administrative designation that will help with decisions about where and how the DNR promotes conservation of Michigan's native biological diversity (biodiversity) across the landscape of ecological sections.
- ERA designation is one of several means of identifying important biodiversity conservation locations by the DNR. Other designations include threatened and endangered species habitat, specific game species habitat, and the natural areas and natural rivers programs.
- An ERA identifies a geographic area on the landscape where there is an emphasis on biodiversity conservation achieved through maintaining and/or restoring high quality native natural communities, with a long-term goal of ensuring that these natural communities are conserved as examples of our State's biodiversity.
- ERAs serve as models of ecological reference within the state. They are higher quality examples of functioning ecosystems that are primarily influenced by natural ecological processes. ERAs are based on the Michigan Natural Heritage Database of documented natural community sites (Element Occurrences). Operationally, ERAs are comprised of two categories (Figure 1):
    - Common Communities. A representative selection of natural communities with a Global (G) or State (S) Rank of G4 or S4 (apparently secure and uncommon), G5 or S5 (secure and common), or S3 (vulnerable) if S3 natural community is less sensitive to typical forest management practices. These ERAs must also have an Element Occurrence (EO) Rank of A or B (The site has 'excellent or good' viability), unless no or very few A or B-ranked examples exists and;
    - Rare Communities. All natural communities with a Global (G) or State (S) Rank of G1 or S1 (critically imperiled), G2 or S2 (imperiled), G3 (vulnerable), or S3 (vulnerable) if the S3 natural community is more sensitive to typical forest management practices. These ERAs may have Element Occurrence (EO) Ranks of A, B, C, or D.
- ERAs are a High Conservation Value Forest (as defined as Representative Sample Areas in the Forest Stewardship Council certification standard) and are Forests with Exceptional Conservation Value (as defined by the Sustainable Forestry Initiative certification standard).
- ERAs are primarily located on DNR-administered State Forests, State Parks, or State Wildlife Areas. Not all high quality natural communities occur on DNR lands, and ERAs also recognize other owners (National Forests, National Parks, National Wildlife Refuges, conservancy lands, and local government conservation lands) that have protective designations on exemplary natural communities.

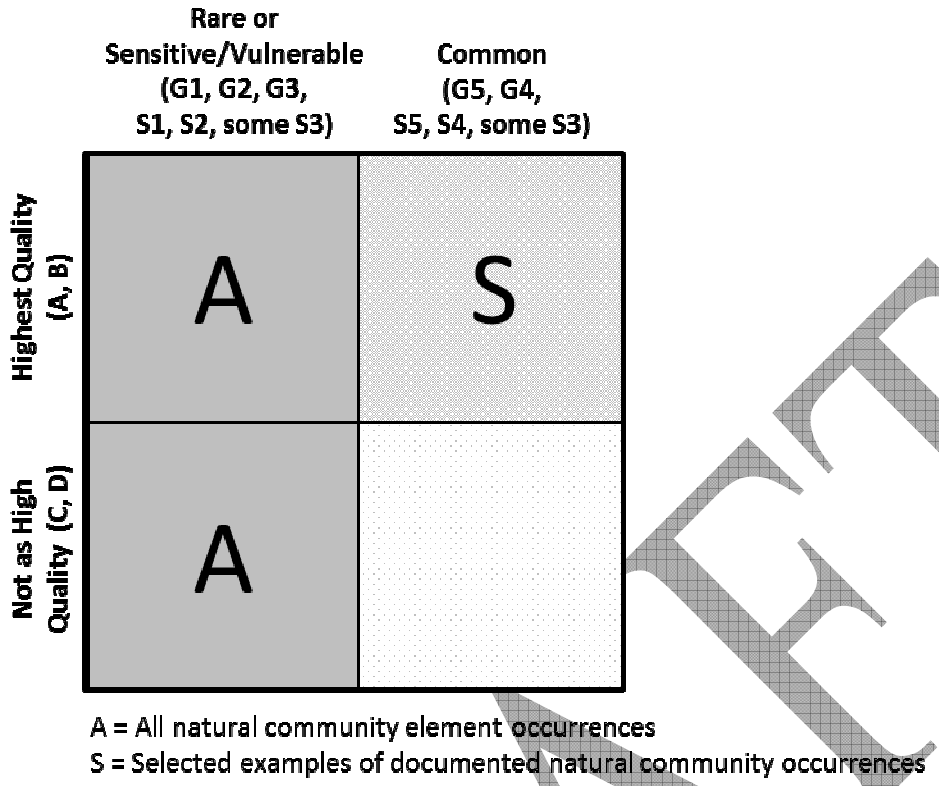

Figure 1. Operational categories of Ecological Reference Areas

General principles of management for ERAs on DNR-administered lands.[1]

1. On lands administered by the DNR, the emphasis of management within ERAs is conservation of the identified natural communities.
2. ERAs will generally not be managed for timber harvest. Management activities or prescriptions in ERAs are limited to low impact activities compatible with the defined attributes and values of the community type, except under the following circumstances:
    - Harvesting activities where necessary to restore or recreate conditions to meet the objectives of the ERA, or to mitigate conditions that interfere with achieving the ERA objectives. In this regard, forest management activities (including timber harvest and prescribed fire) may be used to create and maintain conditions that emulate an intact, mature forest or other successional phases that may be under-represented in the landscape; and
    - Road building only where it is documented that it will contribute to minimizing the overall environmental impacts within the Forest Management Unit and will not jeopardize the purpose for which the ERA was designated.

[1] These guidelines do not apply to ERAs on non-DNR ownerships, where management of these ERAs is governed by their specific planning process.

Threats such as wildfire, natural or exotic pests or pathogens may warrant other management measures.

3. Management within the ERA boundary will be designed to achieve the desired future condition.
    - Desired future conditions (DFCs) for forested communities will be based on characteristics of the high-quality natural community that are identified for the area, as described in 'Generic Desired Future Conditions for Major Forested Natural Communities within Ecological Reference Areas on DNR-Administered Lands'. These characteristics have been determined by survey data from other high-quality occurrences, and from published research and other relevant literature.
    - The composition and structure of natural communities is dependent on the type and frequency of the natural disturbances characteristic of those communities. Disturbance may occur naturally or may be mimicked using conservation and management practices, depending on site-specific conditions, and DNR resource priorities and limitations.
    - Significant progress towards achieving the desired future conditions for a lower quality natural community ERA in some cases may take 100 years or longer.
4. Existing and new land use activities should be evaluated in the context of whether they detract from achieving the desired future conditions. The acceptability of land use activities within DNR-administered ERAs will be evaluated using severity, scope, and irreversibility criteria, as established in DNR Informational Circular #### , Guidance for Land Use Activities within DNR-Administered Ecological Reference Areas.
5. Management will be adaptive.
    - ERAs will be monitored to determine if implemented management activities are moving the natural communities forward, or maintaining them at their desired future condition.
    - Management strategies may change as additional information becomes available.
    - The network of ERAs will be evaluated every five years for their contribution to the overall goal of biodiversity conservation. This review cycle will allow for the potential addition or subtraction of lands from an ERA, designation of new ERAs, or removal of the ERA planning designation.